SECTION 14: QUALITY IMPROVEMENT MODELS AND ACTION STEPS

Continuous Quality Improvement: Models

Many health systems and health care providers are seeking opportunities to improve care to people with diabetes, as there is a growing awareness that there are gaps in care. It is well known that the current systems of care are poorly suited for people with chronic illnesses. The Institute for Health Care Improvement has given life to a new strategy for improving system change and delivery of care. This new strategy is referred to as the Chronic Care Model (CCM).

Health care systems or individual providers may find using the CCM helpful, as the effectiveness of this model has been demonstrated to improve outcomes through early identification and treatment of complications, appropriate application of proven treatments, and effective patient self-management. The CCM can provide a framework or road map for instituting quality improvement initiatives and encouraging change in practices and organizations to promote optimal care for chronic illnesses like diabetes.

Implementing evidence-based Guidelines, such as the Wisconsin Essential Diabetes Mellitus Care Guidelines identified and recommended in this document, are an example of improving quality care for people with diabetes within a health system or organization. Many managed care and integrated delivery systems are taking great interest in management of chronic illness by implementing and using case management. Despite these efforts, more is needed to help providers and systems manage chronic illness.

Three Models for Changing Practice

The three models described in this section offer anyone interested in improving care the opportunity to try a new approach for doing so. These three models are currently being utilized and implemented in various federally-qualified community health centers throughout the United States and in 18 federally-qualified community health centers in Wisconsin alone. Also, MetaStar has utilized and implemented these models with many outpatient clinics throughout Wisconsin. These models for changing practice offer clinics a "process" to assist in performing quality improvement efforts and monitoring successes.

Any health care system can use these models to implement and test quality improvement ideas or initiatives. These models can help providers and others to achieve successful interventions and improve care for the people of Wisconsin.

Learning Model

The Learning Model is adopted from the Institute for Health Care Improvement's Breakthrough Series. The Learning Model is the process of intensive learning for any clinical team wishing to implement and improve care during a specific period of time. For example, various clinical teams participating in a collaborative may identify a 12-month period of time as their learning process. The Learning Model involves five different phases:

1) Clinics must identify a leader and select staff (team) to work on the idea or initiative.
2) The team learns what pre-work or assessment is needed to understand what needs to be studied.

3) The team participates in a structured "learning session" with other teams and expert advisors. During this phase, teams learn, exchange ideas, and design a plan.
4) Between leaning sessions, the teams begin an action period performing test or trial runs for their change idea. This phase utilizes the Model for Improvement, described below.
5) The final phase is that of learning what has worked and not worked; teams work on ways to use the new model to spread to other clinical areas.

Chronic Care Model

The Institute for Health Care Improvement has given life to a new strategy for improving delivery of care. This new strategy is referred to the Chronic Care Model (CCM). For decades, clinicians and researchers have been testing and trying new ways to care for people with a chronic condition like diabetes. Through the Robert Wood Johnson Foundation, Ed Wagner and colleagues have attempted to assist busy health systems to make system changes though quality improvement initiatives by supporting and disseminating research and by developing the CCM. Various organizations around the country have used the model as a road map for changing and redesigning systems to provide better care. Each organization may have focused on different changes, but all of them used a similar recipe.

The CCM provides a framework for supporting change within clinical practices and organizations targeting people with chronic diseases, like diabetes. The CCM identifies needed changes in the performance of health care systems in managing chronic illnesses at the level of the community, the health care organization itself, the practice team, and the person with diabetes.

There is strong evidence that an integrated set of system changes can substantially increase the likelihood that optimal care will be rendered and patient health and satisfaction will improve. The effectiveness of this model has been demonstrated to improve outcomes through early identification and treatment of complications, appropriate application of proven treatments, and effective patient self-management.

The CCM includes six key components for improving chronic care:

1) **Organization of Health Care** – defined by a health systems business plan that reflects its commitment to apply the CCM across the organization, with leaders being visible and dedicated members of the team. The health care system can establish an environment where the approach to treating patients with chronic illness is organized and coordinated across departments.
2) **Delivery System Design** – defined as regular planned visits, incorporating individual goals and utilizing the skills of other members of the team. Adding interventions to an acute care-focused model will not meet these needs. To achieve these goals, changes to current practice design are often required.
3) **Decision Support** – defined as providers having convenient access to evidence-based Guidelines for care. Continual educational outreach to clinicians reinforces utilization of these standards. In addition, collaboration between primary care and specialty care can provide support for new Guidelines.
4) **Clinical Information Systems** – defined as having technology to provide clinicians with a list of patients and information needed to track a patient's health status.

5) **Self-Management Support** – defined as encouraging people to set their own goals, problem-solve barriers, and monitor their own condition using tools and resources to track needed preventive services and care.

6) **Community Resources** – defined as the identification, development, and implementation of effective, evidence-based programs in partnership with other community organizations for people with chronic illness.

A single provider is not able to provide all the resources needed; therefore the six key components of the CCM become important in order to improve outcomes.

Model for Improvement

The Model for Improvement was developed by the Associates in Process Improvement and tested and used throughout various collaboratives. When used with the Chronic Care Model, the Model for Improvement provides a process to improve the quality of care at an accelerated pace. The Model for Improvement is based on three fundamental questions:

1) **What is the team trying to accomplish?**

This statement is meant to establish an AIM Statement for improvement that focuses the organization's effort. It helps to focus on specific actions or elements of the Chronic Care Model, and to define which patients and providers will participate. The AIM statement needs to be specific, concise, time-specific and measurable. In many instances, the AIM will need to be tested before it is truly focused.

2) **How will one know if a change is an improvement?**

Measures and definitions are necessary to answer this question. Data is needed to assess and understand the impact of changes designed to meet the AIM. When shared, AIM statements and data are used, and learning is further enhanced because it can be shared with other organizations. In this way, superior performance and best practices are more quickly identified and disseminated through benchmarking.

3) **What changes can be made that will result in any improvement?**

Testing, and learning from the testing, is necessary to conclude that a result is an improvement. The Plan, Do, Study, Act (PDSA) cycle is a trial-and-learn method to discover what is an effective and efficient way to change a process. The "study" part of the cycle is the key to learning what change leads to improvement. The "study" compels the team to learn from the data collected, to look at effects on other parts of the system and on patients and staff, and under different conditions, such as different practices or at different sites. Most importantly, the "study" phase is an ideal time to think through how the Chronic Care Model helps generate new ideas and approaches to positive change. PDSA cycles are short and quick. Typically, they need only days or a few weeks to be completed.

Monitoring Progress

Measurement is essential to be convinced that changes are leading to improvement. Measures can be specific to a PDSA cycle, part of a targeted goal, clinic, or system-wide. By routinely measuring progress, a provider or clinic can study whether system changes have led to desired improvements.

Continuous Quality Improvement: Action Steps

The following continuous quality improvement action steps for diabetes mellitus, developed in conjunction with the Essential Diabetes Mellitus Care Guidelines for Wisconsin, may be adopted or adapted to meet your health system's needs.

Below are various action steps for diabetes quality improvement programs. Quality improvement programs rely on step-by-step methodologies to define a series of factors that occur systematically and result in improved care. Individuals or workgroups within health systems interested in improving care for people with diabetes may find it is possible to convene a specific multi-disciplinary diabetes workgroup committed to implement a quality improvement project. Organizational and administrative support from the health system prior to beginning work must be secured to assure adequate allocation of staff time and resources.

STEP 1: **Identify your population with diabetes.**
You may already have a registry based on administrative/claims, encounter, hospitalization, and pharmacy data. This identification will allow you to more easily track pertinent clinical data by accessing information collected in the registry. Comparison and analysis of information collected will enable you to measure changes in health care status and evaluate outcomes of care. The registry can be the basis for development of a tracking system to recall individuals for recommended care and facilitate targeting of high-risk groups of individuals for specific interventions. A designated individual should be responsible for maintaining and updating the registry to keep it current.

STEP 2: **Become familiar with the Wisconsin Essential Diabetes Mellitus Care Guidelines.**
The Wisconsin Essential Diabetes Mellitus Care Guidelines outline 13 key areas of concern with recommendations for care/tests, along with a schedule of how frequent the care/test should be performed. Supporting documents and references provide additional details for each specific area. These continuous quality improvement action steps outline ideas for implementation of a diabetes quality improvement project. These steps include population-based indicators that correspond to 10 of the 13 key areas of concern in the Wisconsin Essential Diabetes Mellitus Care Guidelines, as well as identification of possible sources for this data. Measurement with these indicators will help to evaluate overall diabetes care within health systems.

STEP 3: **Review the Wisconsin Essential Diabetes Mellitus Care Guidelines and the continuous quality improvement action steps with your diabetes workgroup.**
A process of local review and adoption is essential. Obtain provider endorsement of the Wisconsin Essential Diabetes Mellitus Care Guidelines, either as they exist or with system-specific changes necessary for your health system. This will result in improved consistency and quality of care throughout your system of care. These Guidelines also serve as a reference point for improving the delivery of care and for measuring improvements in care over time.

STEP 4: **Clarify measurement issues and review criteria.**
Select your topic and decide how you will collect baseline information. Give priority to indicators that are easiest to obtain and for which data are currently available within your health system (such as from existing databases). For example, information related

to process measures, such as the percentage of people who have had a dilated eye exam and the percentage of people with lipid testing in the past year can be obtained from administrative data. Medical record review will likely be necessary for clinical outcome indicators, such as the percentage of people with A1c < 7%. If chart reviews are required, determine how the charts will be selected.

It is essential to develop a set of review criteria that will allow you to translate the Wisconsin Essential Diabetes Mellitus Care Guidelines into measurable terms. Keep the criteria simple, concise, and objective. Define the terms that must be present in the record or from claims or other data to verify adequate fulfillment of each indicator (e.g., the date and results of lipid testing must be documented in the medical record or in a computerized data base). You also need to determine who in your health system is qualified to provide for various aspects of care, such as dilated eye exams, diabetes education, or medical nutrition therapy.

STEP 5: **Collect baseline data.**
Conduct the administrative database review or the medical record review. You may wish to collect data for people who have been continuously enrolled in the health care system for the previous 12 months (or the duration of your designated reporting period). Collecting data through a computerized database may be more efficient than chart audit and can help analyze the information as well as support tracking and recall. This will help provide consistency of data collection, which is essential.

STEP 6: **Analyze baseline data.**
Analyze baseline data to determine how your current practice compares with the Wisconsin Essential Diabetes Mellitus Care Guidelines recommendations to identify problems in care that need improvement. The initial data will provide a reference point that will allow you to measure your progress and isolate problems when making future comparisons. Data should be presented to the medical staff, quality improvement committee, and any other pertinent staff for discussion and feedback. The information should be used to convince policymakers of the need to improve health outcomes, efficiency, and accountability.

STEP 7: **Set priorities on what you want to change first, based on identified problem areas.**
Focus your project by selecting one or more areas for improvement. Avoid the temptation to try to fix everything at once. Adopt a goal that is a reasonable and achievable level for the population of people with diabetes within your health system.

STEP 8: **Design strategies for improving performance on the identified problem areas.**
Choose approaches that have the greatest potential for impact and those that are more easily achieved. You will need to delineate the process of care associated with each problem to help discover the root causes for suboptimal care. Examples of how to design process of care diagrams can be found in various continuous quality improvement references. Problem areas may exist at the level of the patient (e.g., a "no-show" for scheduled eye exam appointment), the provider (e.g., the provider does not order an A1c test or other recommended tests), or the system (e.g., no tracking system is in place for preventive screenings, so the date of the last foot exam is not available to the provider).

Develop strategies in consultation with medical and clinical staff who provide the day-to-day care and who will be personally involved and instrumental in implementation of a systematic process for change. Infrastructure, policy, and environmental changes, such as practice redesign or changes to support practitioners in the delivery of care offer the greatest potential to improve care system-wide. Some examples include: 1) development of systems to support data collection to monitor performance and provide feedback to providers and patients (e.g., abnormal tests or lab values to identify high risk patients), 2) use of computerized or manual reminder systems to provide prompts for proactive care and support recall, 3) use of flow sheets to standardize documentation, 4) automatic referrals for lab work, exams, education, and nutrition, 5) promotion of diabetes clinic teams and case management, 6) access to consultation with specialists, educators, dietitians, and pharmacists, 7) development of standardized protocols to maximize efficiency and consistency of care, 8) telephone support for patients between visits, 9) patient and provider education, 10) increased use of ancillary staff, and 11) enhanced financial coverage for special services.

Identify a plan of action for implementation, set goals for improvement, assign responsibilities for specific tasks, and provide training in overall implementation strategies as needed.

STEP 9: **Implement strategies for improvement.**
This will require the support and involvement of many individuals within your system. To gain their support and assistance, you will need to share the plan with the diabetes team, the medical staff, the clinic staff, patients, and others at every level within the health system that will be involved with and affected by the plan. Assure that everyone understands his/her role as part of a team effort to improve diabetes care throughout the system. Ongoing communication and frequent feedback concerning the implementation process are essential.

STEP 10: **Measure your progress and evaluate the success of your interventions.**
Using the baseline data for comparison, collect and summarize progress information to share with all staff involved. Celebrate areas of success and identify any continued concerns within the identified problem area. You may need to either revise data elements so that they measure the impact of your strategies or revise the strategies themselves to enable your health system to achieve its goals. Continue to monitor the improved process to maintain the progress achieved.

STEP 11: **Quality improvement is a continuous process.**
Once you have achieved your goals for your initial problem area, continue the ongoing process by selecting other problems for improvement.

References

1) Scholtes P. *The Team Handbook: How to Use Teams to Improve Quality*. Oriel Incorporated; 1988.
2) Brassard, M. *The Memory Jogger Plus* + Featuring the Seven Management and Planning Tools. Goal/QPC; 1996.
3) Joint Commission on Accreditation of Health Care. *An Introduction to Quality Improvement in Health Care*. Mosby-Year Book;1991.
4) Crosson FJ. Why outcomes measurement must be the basis for the development of clinical guidelines. *Manag Care Q*. 1995;3:6-13.
5) Mosser G. Clinical process improvement: engage first, measure later. Qual Manag Health Care. 1996;4:11-20.
6) Handley MR, Stuart ME, Kirz HL. An evidence-based approach to evaluating and improving clinical practice: implementing practice guidelines. *HMO Pract*. 1994;8:75-83.
7) Gottlieb LK, Sokol HN, Murrey KO, Schoenbaum SC. Algorithm-based clinical quality improvement. Clinical guidelines and continuous quality improvement. *HMO Pract*. 1992;6:5-12.
8) Murrey KO, Gottlieb LK, Schoenbaum SC. Implementing clinical guidelines: a quality management approach to reminder systems. *QRB Qual Rev Bull*. 1992;18:423-433.
9) Woolf SH, Jonas S, Lawrence RS. *Health Promotion and Disease Prevention in Clinical Practice*. Lippincott Williams & Wilkins;1996.
10) Kaluzny AD, Konrad TR, McLaughlin CP. Organizational strategies for implementing clinical guidelines. *Jt Comm J Qual Improv*. 1995;21:347-351.
11) Wagner EH. Population-based management of diabetes care. *Patient Educ Couns*. 1995;26:225-230.
12) Langley GL, Nolan KM, Norman CL, Provost LP, Nolan TW. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. San Francisco, California: Jossey-Bass;1996.
13) Deming WE. *The New Economics for Industry, Government, Education*. 2nd ed. Cambridge, Massachusetts: The MIT Press;2000.
14) Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? *Eff Clin Pract*. 1998;1:2-4.

Diabetes Population-Based Indicators

Data sources include: Medical Record = MR, Administrative data/Claims = AD/C, Pharmacy = Ph, Lab = L, or Patient Survey = PS

A health system can begin measurement with a _reasonable number_ of indicators.
For guidance with measurement of these indicators, please refer to the companion resources "Continuous Quality Improvement: Action Steps," the "Wisconsin Essential Diabetes Mellitus Care Guidelines," supporting documents, and sample data collection tools.

SHORT TERM INDICATORS (report % of people within the applicable diabetes population with the following)		
SOURCE	FREQUENCY	DATA SOURCE
GENERAL RECOMMENDATIONS/CARE		
Diabetes-focused visits (Type 1)	4 or > per year	MR – AD/C – PS
Diabetes-focused visits (Type 2)	2 or > per year	MR – AD/C – PS
Physical Activity/Weight/BMI/Growth	each focused visit	MR – PS
SELF-MANAGEMENT EDUCATION		
Education visits	1 or > per year	MR – PS – AD/C
MEDICAL NUTRITION THERAPY		
Nutrition therapy visits (Type 1)	2 or > per year	MR – PS – AD/C
(Type 2)	1 or > per year	MR – PS – AD/C
GLYCEMIC CONTROL		
Review for hypoglycemic episodes	Each focused visit	MR – PS
A1c – tests	2 or > per year	AD/C – L
A1c – value	≤ 7.0% or > 8.0%	L – MR
CARDIOVASCULAR CARE		
Smokers advised to quit	Each visit	MR – PS
Referral to cessation		MR – PS
Lipid profile	Annually	AD/C – L – MR
Blood pressure	Each visit	MR – PS
Aspirin therapy for people over age 40 years		Ph – MR – PS
KIDNEY CARE		
Quantitative microalbuminuria	Annually	AD/C – L – MR
People with microalbuminuria on ACE inhibitors		Ph – L – MR
Creatinine clearance/protein if microalbuminuria > 300mg/24 hr		AD/C – L – MR
EYE CARE		
Dilated eye exam	Annually	AD/C – MR – PS
	Alternate year	
FOOT CARE		
Foot exam without shoes and socks	Each focused visit	MR – PS
Comprehensive lower extremity exam	Annually	MR – PS
ORAL CARE		
Oral health screening	Each focused visit	MR – PS
Dental referral	Every 6 months	MR – PS
FLU AND PNEUMOCOCCAL IMMUNIZATIONS		
Influenza	Annually	AD/C – MR – PS
Pneumococcal		AD/C – MR – PS
PRECONCEPTION AND PREGNANCY CARE		
Family planning consult for childbearing age women	Annually	MR – PS
Preconception consultation for childbearing age women		MR – PS

Diabetes Population-Based Indicators

Data sources include: Medical Record = MR, Administrative data/Claims = AD/C, Pharmacy = Ph, Lab = L, or Patient Survey = PS

A health system can select a _reasonable number_ of the indicators for measurement.

INTERMEDIATE INDICATORS (report % of people within the applicable diabetes population with the following)	
SOURCE	**DATA SOURCE**
A1c ≤ 7.0% or > 8.0%	L – AD/C – MR
Mean A1c	L – MR
Microalbuminuria	L – MR – AD/C
Albuminuria	L – MR – AD/C
LDL < 100 mg/dL	L – MR
LDL < 130 mg/dL	
HDL > 45 mg/dL	
Triglycerides < 200 mg/dL	
ER visits for severe hypoglycemia	AD/C – MR
Hospitalizations for:	
• DKA	AD/C – MR
• Other diabetes-related	
Blood pressure < 130 systolic	MR – PS
Blood pressure < 80 diastolic	
Tobacco users	MR – PS – AD/C
Smokers who quit	MR – PS
Influenza	AD/C – MR – PS
Pneumococcal pneumonia	AD/C – MR – PS
Infected lower extremity ulcers	AD/C – MR – PS
Other infections, periodontitis, oral, UTI, skin, etc.	AD/C – MR – PS
Pregnancies complicated by:	
• Major congenital malformations	AD/C – MR – PS
• Macrosomia (> 4000 grams)	AD/C – MR
• Stillbirth or spontaneous abortion	AD/C – MR – PS
LONG-TERM INDICATORS (report % of people within the diabetes population with the following)	
SOURCE	**DATA SOURCE**
Proliferative retinopathy	AD/C – MR
Overt nephropathy	AD/C – MR
Cardiovascular disease	AD/C – MR
Myocardial infarction	AD/C – MR
Cerebrovascular disease	AD/C – MR
Other smoking related diseases (COPD, lung cancer, etc.)	AD/C – MR
End-stage renal disease	AD/C – MR
Blindness	AD/C – MR
Lower extremity amputation	AD/C – MR
Osteomyelitis	AD/C – MR
Periodontal disease	AD/C – MR
Tooth loss	MR – PS – AD/C

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